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In Particular a Tennis Shoe
(Addition to Patent - Patent Application P 25 20 797.0)

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Description

In accord with an older proposal of the applicant, namely P 25 20 797.0, is provided, at least in the area of the toe area of a sport shoe, a layer of a plastic of a high order of abrasion resistance, in particular this plastic being a cross linked polyurethane. Therewith, the abrasive wear which is incurred especially by tennis shoes in the briefest of times, is to be prevented, without essentially increasing the weight of the shoe, and above all, avoiding bringing about a stiffening, which would work disadvantageously in regard to the feel of the playing surface and react likewise on the natural roll of the foot.

The present application concerns an improvement of the formerly introduced proposal, which improvement entails, that the said coating of high-wear resistant plastic be additionally reinforced by an insert of a woven or meshed fabric.

Since the fabric or the mesh, by which the layer is reinforced, of itself can contribute no stiffening, yet must have a high resistance to abrasive wear, the raw materials can well be glass fiber fabric, carbon fiber weaves, fine metal mesh or the like. In addition to these, textile fibers which have been toughened by impregnation are useable.

The insert is advantageously, from the very beginning, worked into the plastic layer or into a part thereof. It can, however, also in one work-step be molded-in during the application of the said layer onto the shoe or during a spray operation. The invention encompasses, it goes without saying, integrally with the said layer, complete outer soles, which, subsequently are bound to the shoe upper by an adhesive.

An embodiment of the invention is explained in greater detail with the accompanying drawings.

There is shown in:

Fig. 1 a tennis shoe, viewed from below at an angle, and

Fig. 2 a partial, longitudinal section through an invented shell sole seen perpendicularly to the outer sole, wherein, only the area of the forward tip of the shoe is depicted.

In the area of the forward tip, i.e., the toe, of the shoe, embedded in the outer sole 1 is a molded part 2, made of an especially crosslinked, high grade polyurethane (Vulkollan®), which offers a very pronounced resistance to abrasion.

The said molded piece extends itself, as can be seen in Fig. 1, out of a ball of the foot zone 2', which is constructed in a circular fashion, into a ca. 2 cm broad edge strip 2"

along the rim of the sole up to the tip of the shoe. From that curve at the tip of the shoe, the said strip spills over into the elevated shell rim of the outer sole 1. That described and now elevated part of the said molded part, is designated by the reference number 3.

This molded part 2 carries on its underside, outwardly projecting profiled projections in the shape of cylindrical pins 4, which, for example, have a diameter of 3 to 5 mm and can have a height of 1 to 2 mm. The separating distance, one from the other, of the said

projections is optional. However, it should yet be small enough to carry out the sought after effect mentioned in the introduction. For a more clear highlighting, the sole, in the zone 2', is shown in a localized cross-section.

In particular, in regard to the shaping of the cylindrical pins 4, reference may be made to the principal main application P 25 20 797.0 (or the older Utility Patent G 75 15 018.4).

Fig. 2 shows schematically, in a longitudinal section through an outer sole 1, which sole here deviates from the embodiment of Fig. 1, a further formulation still in accord with the present invention. From this Fig. 2 can be recognized, that in the toe area of the outer sole 1, presented as a shell sole, a foamed material cushioning 5 is present.

Beneath this cushioning 5, similar to the case of the outer sole in Fig. 1, a layer 2 of high-wear resistant plastic, preferably, the said "Vulkollan®", is embedded. A woven insert of glass fiber or carbon fiber weave is embedded in the layer 2. This embedded insert additionally protects the layer 2 after abrasive wear of the sole material. This insert exhibits itself as especially effective on concrete tennis courts, which show results of very high abrasive wear.

It is obvious, that the insert 6 can also be provided in a layer, which, in accord with the presentation in Fig. 1, possesses protruding profiled projections 4.

Claims

Claimed is:

1. A sport shoe, in particular a tennis shoe, in which, at least in the zone of the toe of the shoe, is provided with a layer of a high abrasion resistant plastic, especially of a cross-linked polyurethane (in accord with Patent-Application P 25 20 797.0), therein characterized, in that the layer (2) is reinforced by an insert (6) of a woven or meshed fabric.

2. A sport shoe in accord with Claim 1, therein characterized, in that the woven or meshed fabric is composed of glass fibers, carbon fibers, or the like.

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Fig. 1

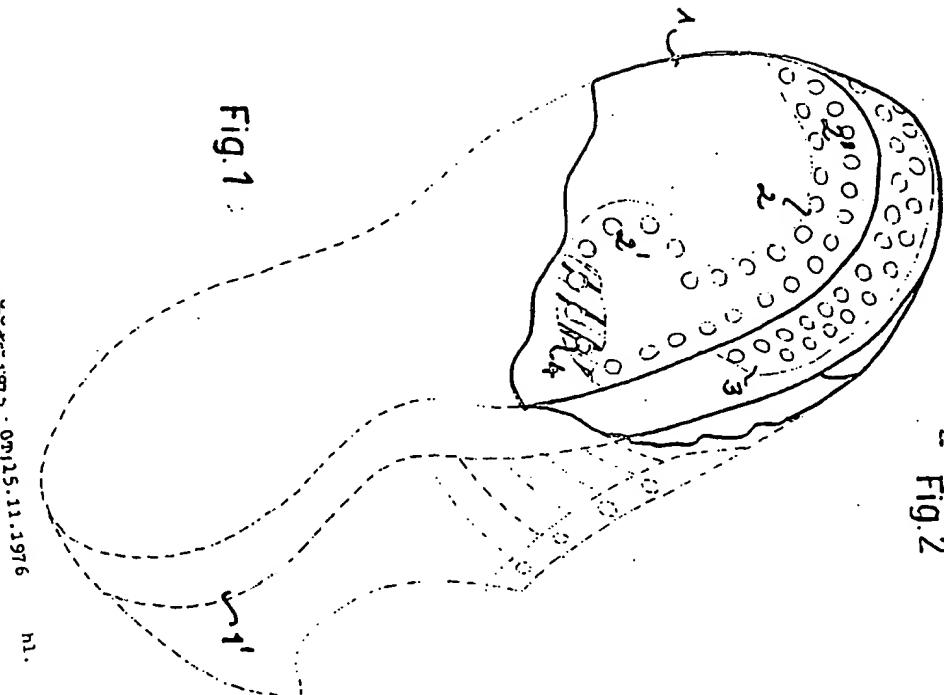
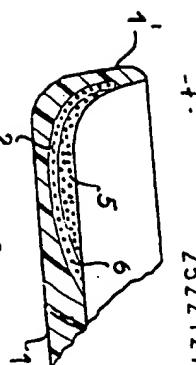


Fig. 2



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